

AMENDMENTS

Please amend the claims as follows:

We claim:

1. (currently amended) A process for conversion of hydrocarbon fuel to produce an exit gas stream containing hydrogen and carbon monoxide as main reaction products comprising:

providing a feed gas mixture comprising an oxygen containing gas and a heavy hydrocarbon fuel, the feed gas mixture comprising a carbon to oxygen ratio from about 0.5 to about 1.0;

providing a catalytic structure comprising an oxidation catalyst and a steam reforming catalyst both supported on an open-channel support, the steam reforming catalyst being different than the oxidation catalyst; and

passing said feed gas mixture through said catalytic structure, said catalytic structure being maintained at a temperature sufficient to produce the exit gas stream containing hydrogen and carbon monoxide as main reaction products, wherein the process for conversion of hydrocarbon fuel operates without the addition of steam or water.

2. (original) The process of Claim 1, wherein said hydrocarbon fuel is a heavy hydrocarbon fuel comprising a plurality of hydrocarbon molecules, with substantially all of said molecules each containing at least 6 carbon atoms.

3. (original) The process of Claim 2, wherein said heavy hydrocarbon fuel is selected from the group consisting of gasoline, kerosene, jet fuel, and diesel fuel.

4. (original) The process of Claim 1, wherein said oxidation catalyst is a noble metal.

5. (original) The process of Claim 4, wherein said noble metal is rhodium.

6. (original) The process of Claim 1, wherein said steam reforming catalyst comprises nickel.

7. (original) The process of Claim 1, wherein said steam reforming catalyst further comprises rhodium.

8. (currently amended) The process of Claim 1, wherein said oxidation catalyst is rhodium and said steam reforming catalyst comprises nickel.

9. (original) The process of Claim 1, wherein catalytic structure is maintained at a temperature greater than about 900°C.

10. (original) The process of Claim 1, wherein said open-channel support comprises a ceramic monolith.

11. (original) The process of Claim 1, wherein said open-channel support comprises a porous alumina monolith.

12. (cancelled)

13. (original) The process of Claim 1, wherein said process deposits less than about 1 atom% of total carbon in said hydrocarbon fuel as elemental carbon and carbon-rich compounds.

14. (original) The process of Claim 1, wherein the catalyst contact time is from 10 milliseconds to 500 milliseconds.

15. (currently amended) A method for supplying a product gas mixture that operates without the addition of steam or water comprising hydrogen and carbon monoxide to a solid oxide fuel cell system, said product gas mixture being produced by a conversion of hydrocarbon fuel, comprising the steps of:

providing a feed gas mixture comprising an oxygen containing gas and a heavy hydrocarbon fuel, the feed gas mixture comprising a carbon to oxygen ratio from about 0.5 to about 1.0;

providing a catalytic structure comprising an oxidation catalyst and a steam reforming catalyst, both supported on an open-channel support, the steam reforming catalyst being different than the oxidation catalyst;

passing said feed gas mixture through said catalytic structure, said catalytic structure being maintained at a temperature sufficient to produce an exit gas stream containing hydrogen and carbon monoxide as main reaction products; and

directing said product gas mixture to said solid oxide fuel cell system, wherein the conversion of hydrocarbon fuel operates without the addition of steam or water.

16-27. (cancelled)